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COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

November 13, 1998

**VIA HAND DELIVERY**

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
Room 222  
1919 M Street, N.W.  
Washington, D.C. 20554

Re: Ex Parte Presentation in CS Docket 96-85

Dear Ms. Salas:

Pursuant to 47 C.F.R. § 1.1206, the National Association of Telecommunications Officers and Advisors ("NATOA") and Montgomery County, Maryland, through undersigned counsel, submit this original and one copy of a letter disclosing an oral and written ex parte presentation in the above-captioned proceeding.

On November 12, 1998, F. Lee Ruck, Executive Director of NATOA; Andrew Afflerbach of Columbia Telecommunications Corporation; and Nicholas P. Miller and Matthew C. Ames of Miller & Van Eaton, met with Anita Wallgren of Commissioner Ness's office. A copy of the enclosed written ex parte presentation was given to Ms. Wallgren.

In the oral ex parte presentation, the parties stated that the reference to transmission technology and subscriber equipment in Section 624(e) of the Communications Act only prevents local governments from regulating the scrambling or encryption of signals transmitted over the system. The parties also discussed the matters addressed in the written presentation.

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**Miller & Van Eaton, P.L.L.C.**

Ms. Magalie Roman Salas

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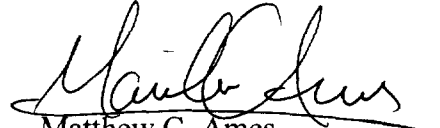
November 13, 1998

Please contact the undersigned with any questions.

Very truly yours,

**Miller & Van Eaton, P.L.L.C.**

By

  
Matthew C. Ames

cc: Anita Wallgren, Esq.

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**THE COMMISSION SHOULD NOT PREEMPT THE AUTHORITY OF LOCAL GOVERNMENTS TO REQUIRE SYSTEM UPGRADES THAT MEET COMMUNITY NEEDS AND INTERESTS.**

- The amendment of Section 624(e) did not alter the authority of local governments to negotiate the specific terms of cable system upgrades, including channel capacity, basic system design and node sizes.
- Preserving local authority over such matters not only helps meet community needs and interests, but advances the Commission's policy goals by promoting the growth of advanced, high capacity networks.
- Authority to require fiber optic technology and specify node sizes is necessary to assure technical reliability and uniformity of service throughout a franchise area.
- Cable operators will agree to such provisions when communities insist on them, as in the following recent renewals:
  - Montgomery County Maryland: Prime Communications has agreed to build a 750 Mhz hybrid fiber-coaxial (HFC) system, with up to 1500 subscribers per node. The operator will initially provide up to 82 analog channels, with 200 Mhz reserved for digital uses. The system will be designed to allow the operator to increase or decrease the amount of capacity devoted to digital uses, as subscriber demand may dictate. See Attachment A.
  - Arlington County, Virginia: Prime has agreed to build a system substantially similar to the one in Montgomery County. See Attachment B.
  - Fairfax County, Virginia: Media General will provide an HFC system serving an average of no more than 2000 subscribers per node, with no more than ten amplifiers in a cascade. See Attachment C.
- Commission preemption would threaten the enforceability of franchise agreements that contain such requirements.
- Preserving local authority will not harm the industry, because franchising authorities can only require upgrades that meet community needs and interests "taking into account the costs of meeting such needs and interests." The nature and scope of rebuild requirements is merely one part of a negotiated package. For example, in Tucson, Arizona, the operator agreed only to a 550 Mhz rebuild, despite the City's concerns about the capability of the system to provide future advanced services, but agreed to limit node size to no more than 1500 customers.
- Preserving local authority will allow local governments to maintain pressure on operators to meet high standards. In a market with continuing monopoly characteristics, operators might otherwise reduce long-term investment – and technical capabilities -- to preserve short-term cash flow.

## **ATTACHMENT A**

may be required to meet the needs and interests of the community in light of the costs during the remaining term of the franchise.

(2) To ensure that the Franchisee is carrying out its responsibilities hereunder, the Franchisee shall be required to submit a report on cable technology to the County every three years during the Franchise term. Each report shall describe developments in cable technology, and whether, how, and by what date the Franchisee plans to incorporate those technological developments into the System. In addition, the report shall describe the effect of those developments on public, educational, and governmental use of the Cable System, and the effect and compatibility of those technological changes on consumer electronic equipment. The report also shall describe how other cable companies have incorporated or are planning to incorporate the technological developments into their Systems and the estimated timetable for doing so.

(d) *System Rebuild:* Within four years after the effective date of this Agreement, the Franchisee shall complete a System Rebuild providing at least the following capabilities:

(1) The rebuilt System shall have a minimum bandwidth capacity of 750 MHz on all active components, at least 750 MHz for all existing passive components, and at least 1 GHz for all new or replaced passive components; an analog bandwidth of 550 MHz; and shall initially have a minimum analog Channel capacity of at least 82 Channels, downstream to all Subscribers, and a minimum digital capacity of 200 MHz. If the Franchisee subsequently decides to change the amount of capacity allocated to analog programming, the Franchisee shall notify the County in writing at least sixty (60) days prior to the effective date of the proposed change.

(2) The System backbone connections shall utilize fiber optic links (headend to hubs, hubs to hubs, and hubs to nodes). The System shall be designed and engineered with redundant paths between the headend and all hubs. Fiber optic nodes, segmented into distinct service areas, shall be constructed to serve coaxial copper cable passing no more than 1,500 dwelling units per node. Individual nodes may serve cable passing a *de minimis* number of dwelling units in excess of 1,500, provided there is no effect on the performance characteristics of the node.

(3) The Franchisee shall design the system so that channel capacity may be readily expanded and digital programming delivered to Subscribers through digital video compression or similar appropriate technology without compromising signal or service quality or requiring significant alterations, upgrading or reconstruction.

(4) The rebuilt System shall provide two-way capability. Except as provided elsewhere in this Agreement, Franchisee, in its sole discretion, may activate such capability based on economic and technical considerations.

(5) The Franchisee may offer high-speed cable modems as a Cable Service.

(6) The Franchisee shall offer service to all Montgomery County residences and businesses subject to Section 4(b).

(7) Service shall be provided to all of the City of Takoma Park.

(8) Other Specifications. The rebuilt System shall further have the minimum technical characteristics and specifications described in Proposed CTM Upgrade Parameters, attached as Exhibit C hereto.

(e) *System Architectural Design Review Process.*

## **EXHIBIT C**

### **PROPOSED CTM UPGRADE PARAMETERS**

#### **General**

The Montgomery County design incorporates some unique challenges. The distances to be covered, the variable densities (from urban in the Southeastern to rural in the North and West) to be served, and the demographic interests of the community (widest possible range of services) combine to present situations not always seen in these proportions.

Throughout the document we attempt to describe a "best-fit" logic that balances the need for financially responsible plant renewal, the need for sensitive consumer logistics, and the need to accomplish other telecom objectives of the franchise authority.

#### **Synopsis**

The renewal platform will be a 750Mhz HFC architecture with fiber trunking, standby powering, and flexibility in accommodating future digital initiatives of the cable industry. Node size will average between 1000 and 1500, but will not be a design constraint, as trafficking and load demand issues are managed in other ways. The consumer impact of the renewal is carefully considered, with contractor selection and methodology optimized for the least practical disruption. Service, in general, is affected for the daylight hours only, on only the day and in the area under reconstruction.

#### **Supporting Discussion**

Detailed discussion follows, to the extent possible for this stage of the activity.

#### **Fiber Architecture**

The architecture of the fiber distribution system impacts flexibility, performance and cost.

The planned system will employ 1319 nm. YAG transmitters to serve some Hubs, and some hubs will be fed with 1550 nm. transmitters utilizing Erbium Doped Fiber Amplifiers (EDFA's) to optically repeat signals at the hubs as they were originally generated at the Headend. This method offers the greatest efficiencies relative to cost and performance.

Recent experience and laboratory testing with Harmonic Lightwaves dispensed with concerns relative to the use of the 1550 nm. Window in non-Dispersion Shifted Fiber. Also Stimulated Brillouin Scattering (SBS) suppression was demonstrated, alleviating concerns over the issue of SBS, as well as other issues of fiber nonlinearity.

## **Fiber to Hubs**

The walk out of fiber routes to the Hub sites will be completed for both preferred alternate routes. These routes are preliminary routes at this time in distance and type of construction required (aerial vs. underground), and are approximately 450 miles.

We are presently using the following criteria to determine fiber count estimates. The total count is the sum of:

### ***Fiber Counts***

1. CATV = N This is the identifier for the number of fibers required to service the currently planned node sites. This will accommodate the design criteria of 4 trunk amps and 3 line extenders in cascade (nominal).
2. CAP = S We will utilize this identifier to indicate the number of fibers required for a CAP effort. This will be held separate from the Telephony or the apartment application for the purpose of this work.
3. Hotel = H This is being used to indicate the capacity required for hotel services in the Backbone fiber that will feed the Hubs for the purpose of delivering Near Video on Demand or other (future) hotel services.
4. Future Nodes = F The growth pattern for new construction is known and with the input from the Commercial Development Department, we can accurately estimate the needs for future Nodes and Hubs; this will be identified by "F".
5. Contingency = C Contingency fibers will be added in the transport backbone to accommodate any possible future plans of reduction in Node sizes.
6. Telephony - T We will assess all of the apartment complexes and will allocate capacity for targeted share tenant offerings.
7. Return = R The return calculation includes (1) one fiber per node through the Backbone to the Head End. This calculation may be balanced with the progress of a return "Stacker" becoming available which would allow us to multiplex a number of return node fibers on one return hub fiber. Costs are not the dominant variable here, but rather reverse data multiplexing and headroom issues are.
8. Bulk "extra" or standard capacity. We will add a future quantity of fibers, generally about 30%, unassigned for now. We call this term "B".



9. Telecom needs of the County: capacity here is reserved for the shared sheath Inet plant to accommodate the needs of the County. We call this term "G".

### **Performance**

The entire system performance budget, in decibels, is allocated up between the Headend to Hub, Hub to node, and the coaxial plant.

#### **A. Hub Performance**

In an optical repeat system, Hub performance is 54 to 55 dB c/n ratio, with -65 dB distortions. In an electrical repeat system, Hub performance would range from 57 to 58 dB c/n ratio prior to remodulation, with -65 dB distortions.

#### **B. Node Performance**

In an optical repeat system, node performance would range from 50 to 51.5 dB c/n ratio with -65 dB distortions. In an electrical repeat system, node performance would range from 50 to 51.5 dB c/n ratio with -62 dB distortions due to remodulation.

#### **C. System Performance (Pre-Converter)**

Worst case Carrier to Noise ratio would be 47 dB with -52 dB CTB and -51 dB CSO at the input to the converter. Since all distortions are calculated with CW carriers, real world distortion performance would be better by about 6 dB.

### **Future Issues**

Diagnostics or status monitoring has typically been a manufacturer specific product. There is currently a movement underway to integrate various manufacturer's systems under common protocol known as SNMP (Simple Network Management Protocol).

Currently we are evaluating various status monitoring systems in operation for the fiber network. The industry is divided over whether diagnostic effort is best done from digital terminal (modems and digital converter) initiatives or by the monitoring of plant components. We are sympathetic to the argument that diagnostics from terminals are more illustrative of actual conditions, and may be better suited to comparisons and isolation of trouble points.

### **Contractor Decorum**

We intend to select only contractors for the upgrade work that have experience in urban systems reconstruction, and have engineering services to include balance and continuity assurance. The fiber overlays are in place before the coaxial plant is disturbed, and only the sections affected for

that day are disturbed, with same day signal restoration. This process has been used before successfully, and, together with design flexibility for maximal facilities reuse, is sensitive to the consumer issues of work done in the utility easements and the time of disruption.

## **ATTACHMENT B.**

except in the case where the requesting Person is the County, in which case no payment shall be required. The Certificate Holder will be given not less than forty-eight (48) hours advance notice to arrange for such temporary wire changes.

- (c) If any removal, relaying, or relocation is required to accommodate the construction, operation, or repair of the facilities of another Person that is authorized to use the Public Rights-of-Way, the Certificate Holder shall, after thirty (30) days' advance written notice, take action to effect the necessary changes requested by the responsible entity. The County may resolve disputes as to responsibility for costs associated with the removal, relaying, or relocation of facilities as among entities authorized to install facilities in the Public Rights-of-Way if the parties are unable to do so themselves, and if the matter is not governed by a valid contract between the parties or any State or federal law or regulation.
- (d) In the event of an emergency, or where the System creates or is contributing to an imminent danger to health, safety, or property, as solely determined by the County, the County may remove, relay, or relocate any or all parts of the System without prior notice, at the sole expense of the Certificate Holder.

**4.12 REMOVAL OF FACILITIES AT EXPIRATION OF CERTIFICATE.** At the expiration of the term for which this Certificate is granted, or upon the expiration of any renewal or extension period which may be granted, or upon the termination or revocation of this Certificate, the County will have the right to require the Certificate Holder, at its sole expense: (i) to remove all portions of the System from all Public Rights-of-Way within the County; and (ii) to restore affected sites to their original condition. Should the Certificate Holder fail, refuse, or neglect to comply with the County's directive, all portions of the System, or any part thereof, may be removed, altered or relocated by the County at the cost of the Certificate Holder. The County will not be liable to the Certificate Holder for damages resulting from such removal, alteration or relocation.

## **SECTION 5. SYSTEM FACILITIES, SERVICES AND TECHNICAL STANDARDS.**

**5.1 SYSTEM REBUILD.** Within two (2) years after the Effective Date of this Certificate, the Certificate Holder shall complete a System Rebuild providing at least the following capabilities:

- (a) The rebuilt System shall have a minimum bandwidth capacity of 750 MHz on all active components, at least 750 MHz for all existing passive components, and at least 1 GHz for all new or replaced passive components; an analog bandwidth of 550 MHz; and shall initially have a minimum analog Channel capacity of at least 82 Channels, downstream to all Subscribers, and a minimum digital capacity of

200 MHz. If the Certificate Holder subsequently decides to change the amount of capacity allocated to analog programming, the Certificate Holder shall notify the County in writing at least sixty (60) days prior to the effective date of the proposed change.

- (b) The System backbone connections shall utilize fiber optic links between the headend and all nodes. Fiber optic nodes, segmented into distinct service areas, shall be constructed to serve coaxial copper cable passing an average of no more than 1,500 dwelling units per node. Individual nodes may serve cable passing a *de minimis* number of dwelling units in excess of 1,500, provided there is no effect on the performance characteristics of the node.
- (c) The Certificate Holder shall design the System so that channel capacity may be readily expanded and digital programming delivered to Subscribers through digital video compression or similar appropriate technology without compromising signal or service quality or requiring significant alterations, upgrading or reconstruction.
- (d) The rebuilt System shall provide two-way capability. Except as provided elsewhere in this Certificate, the Certificate Holder, in its sole discretion, may activate such capability based on economic and technical considerations.
- (e) The Certificate Holder may offer high-speed cable modems as a Cable Service.
- (f) The Certificate Holder shall offer service to all County residences and businesses. Notwithstanding the foregoing, the requirements contained in the following sections of this Certificate shall not apply to service provided by the Certificate Holder to business customers: Section 5.2(i) (Consumer Equipment); Section 5.2(j) (Parental Control); Section 5.2(k) (Program Security); Section 6.3 (Service Installation); and Section 6.4(a)(Line Extension). Except as otherwise required under this Certificate, the terms and conditions of services provided to businesses are subject to negotiation between the Certificate Holder and the business requesting service.
- (g) As part of the Rebuild, the Certificate Holder shall, at its sole expense, remove from the Public Rights-of-Way all existing equipment that will not be used by the rebuilt System or will be deactivated as the Rebuild is performed. To the extent feasible, the removal of deactivated or unused equipment shall be performed at the time rebuilt portions of the System are activated and accepted. In any event, all such equipment shall be removed by the time the Rebuild is completed. If any unused or deactivated equipment remains in Public Rights-of-Way after the

Completion of the Rebuild; the County may remove such plant and equipment at the Certificate Holder's expense.

- (h) **Other Specifications.** The rebuilt System shall further have the minimum technical characteristics and specifications described in Proposed Cable TV Arlington Upgrade Parameters, attached as Exhibit B hereto.

**5.2 SYSTEM CHARACTERISTICS.** The Certificate Holder's Cable System shall, at all times during the term of the Certificate and any extension or renewal thereof, meet or exceed the following requirements:

- (a) **Compliance With FCC Rules.** All maintenance performed on the System by the Certificate Holder shall be in accordance with the FCC's rules and regulations governing the technical performance and operating standards for such System.
- (b) **Continuous 24-Hour Operation.** The System shall be capable of continuous twenty-four (24) hour daily operation without severe material degradation of signal except during extremely inclement weather or immediately following extraordinary storms that adversely affect utility services or damage major system components.
- (c) **Temperature Specifications.** The System shall be capable of operating over an outdoor temperature range of -20 degrees F to +120 degrees F and over variations in supply voltages from 105 to 130 volts AC without catastrophic failure or irreversible performance changes. The System shall meet all applicable specifications over an outdoor temperature range of 0 degrees F to 100 degrees F and over variations in supply voltages from 105 to 130 volts AC.
- (d) **No Interference.** The System shall be operated in such a manner as to minimize interference with the reception of off-the-air signals by a Subscriber. The Certificate Holder shall insure that signals carried by the System, or originating outside the System wires, cables, fibers, electronics and facilities, do not ingress or egress into or out of the System in excess of FCC or other standards. In particular, the Certificate Holder shall not operate the System in such a manner as to pose unwarranted interference with emergency radio services, aeronautical navigational frequencies or any airborne navigational reception in normal flight patterns, or any other type of wireless communications, pursuant to FCC regulations.
- (e) **No Deterioration to Access Signals.** The System shall be so constructed and operated that there is no significant deterioration in the quality of Public, Educational or Governmental Access Channel signals or Leased Access Channel

## **EXHIBIT B**

### **PROPOSED CABLE TV ARLINGTON UPGRADE PARAMETERS**

#### **General**

The Arlington County ("County") design incorporates some unique challenges. The high population density in the County, the large number of multi-unit dwellings to be served, the urban character of the County and the demographic interests of the community (widest possible range of services) combine to present situations not always seen in these proportions.

Throughout the document we attempt to describe a "best-fit" logic that balances the need for financially responsible plant renewal, the need for sensitive consumer logistics, and the need to accomplish other telecommunications objectives of the County.

#### **Synopsis**

The renewal platform will be a 750MHz HFC architecture with fiber trunking, standby powering, and flexibility in accommodating future digital initiatives of the cable industry. Node size will average between 1000 and 1500, but will not be a design constraint, as trafficking and load demand issues are managed in other ways. The consumer impact of the renewal is carefully considered, with contractor selection and methodology optimized for the least practical disruption. Service, in general, is affected for the daylight hours only, and on only the day of and in the area under reconstruction.

#### **Supporting Discussion**

Detailed discussion follows, to the extent possible for this stage of the activity.

#### **Fiber Architecture**

The architecture of the fiber distribution system impacts flexibility, performance and cost.

The planned system will employ 1310 nm and/or 1550 nm laser transmitting equipment.

Recent experience and laboratory testing with Harmonic Lightwaves dispensed with concerns relative to the use of the 1550 nm Window in non-Dispersion Shifted Fiber. Also, Stimulated Brillouin Scattering (SBS) suppression was demonstrated, alleviating concerns over the issue of SBS, as well as other issues of fiber nonlinearity.

## Fiber Counts

CATV = N This is the identifier for the number of fibers required to service the currently planned node sites. This will accommodate the design criteria of 4 trunk amps and 3 line extenders in cascade (nominal).

CAP = S We will utilize this identifier to indicate the number of fibers required for a CAP effort. This will be held separate from the Telephony or the apartment application for the purpose of this work.

Hotel = H This is being used to indicate the capacity required for hotel services in the Backbone fiber for the purpose of delivering Near Video on Demand or other (future) hotel services.

Future Nodes = F The growth pattern for new construction is known and with the input from the Commercial Development Department, we can accurately estimate the needs for future Nodes and Hubs; this will be identified by "F".

Contingency = C Contingency fibers will be added in the transport backbone to accommodate any possible future plans of reduction in Node sizes.

Telephony - T We will assess all of the apartment complexes and will allocate capacity for targeted share tenant offerings.

Return = R The return calculation includes (1) one fiber per node through the Backbone to the Head End.

Bulk "extra" or standard capacity. We will add a future quantity of fibers, generally about 30%, that are unassigned for now. These fibers will be identified by "B".

Telecommunications needs of the County: Capacity here is reserved for the shared sheath I-Net plant to accommodate the needs of the County. We call this term "G".

## Performance

The entire system performance budget, in decibels, is allocated up between the Headend to the nodes, and the coaxial plant.



### **Node Performance**

In an optical repeat system, node performance would range from 50 to 51.5 dB c/n ratio with -65 dB distortions. In an electrical repeat system, node performance would range from 50 to 51.5 dB c/n ratio with -62 dB distortions due to remodulation.

### **System Performance (Pre-Converter)**

Worst case Carrier to Noise ratio would be 47 dB with -53 dB CTB and -51 dB CSO at the input to the converter. Since all distortions are calculated with CW carriers, real world distortion performance would be better by about 6 dB.

### **Future Issues**

Diagnostics or status monitoring has typically been a manufacturer specific product. There is currently a movement underway to integrate various manufacturers' systems under common protocol known as SNMP (Simple Network Management Protocol).

Currently we are evaluating various status monitoring systems in operation for the fiber network. The industry is divided over whether a diagnostic effort is best done from digital terminal (modems and digital converter) initiatives or by the monitoring of plant components. We are sympathetic to the argument that diagnostics from terminals are more illustrative of actual conditions, and may be better suited to comparisons and isolation of trouble points.

### **Contractor Decorum**

We intend to select only contractors for the upgrade work that have experience in urban system reconstruction, and have engineering services to include balance and continuity assurance. The fiber overlays will be in place before the coaxial plant is disturbed, and only the sections affected for that day are disturbed, with same-day signal restoration. This process has been used before successfully, and, together with design flexibility for maximum facilities reuse, is sensitive to the consumer issues of work done in the utility easements and the time of disruption.

## **ATTACHMENT C**

(c) *Integration of Advancements in Technology.* During the franchise term, the Grantee shall maintain and improve its existing facilities in accordance with accepted cable industry practices.

(d) *System Upgrade.* The Grantee shall complete a System Upgrade in accordance with the schedule set forth in subsection 6(f) providing at least the following characteristics:

- (1) no microwave links in the distribution system from the headend, except as a backup to wireline systems;
- (2) replacement of the current AML microwave link with fiber, in order to achieve reliable downstream transmission and a two-way system with acceptable noise and distortion properties;
- (3) redundant routing between each hub site and headend of the upgraded Grantee's Cable System;
- (4) segmentation of the system so that sufficient capacity is available for interactive services;
- (5) Hybrid fiber-coaxial ("HFC") architecture, with fiber-optic cable at least to the feeder, so that no more than an average of 2,000 homes passed per dual coaxial cable are served from any fiber node (except that if Grantee uses single cable in any locations, there shall be no more than an average of 1,000 homes passed per fiber node), and with the return path activated on both cables where dual cables are used;
- (6) designed and built to no more than ten coaxial amplifiers (excluding any such amplifier that serves only a single subscriber) per coaxial cable in each cascade from the node;

(7) a capacity rating of at least 550 MHz for all active components obtained on or after the Effective Date of this Agreement and at least 450 MHz for active components obtained prior to the Effective Date of this Agreement, and a rating of at least 750 MHz for all passive components obtained on or after the Effective Date;

(8) computer-controlled audio leveling equipment, capable of sampling and controlling the entire audio frequency spectrum for each channel and of sampling over time, provided that Grantee reserves the right to discontinue use of this equipment if such equipment adversely affects the operation of Grantee's Cable System.

(e) *System Design Submission Process.* At least two weeks prior to the date construction of any upgrade of a segment of Grantee's Cable System is scheduled to commence, the Grantee shall submit to the County a system design and construction plan for that segment, which shall be subject to change and include at least the following elements:

- (1) Design type, trunk and feeder design, and location of hubs, nodes, and amplifiers;
- (2) Distribution system equipment to be used;
- (3) Locations and design types for standby power.

The system design will be shown on construction-scale maps. To the extent that the Grantee revises its plan prior to construction, the Grantee shall submit a revised plan. The Grantee's submission of such plans and maps shall not operate to waive any rights of Grantee, and neither the County's receipt of such plans and maps and comments thereon, nor any comments it provides to the Grantee, shall operate to waive any rights of the County.